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*Published in:*  
International Journal of Rehabilitation Research

*DOI:*  
[10.1097/MRR.0b013e32832081c](https://doi.org/10.1097/MRR.0b013e32832081c)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2009

[Link to publication in University of Groningen/UMCG research database](#)

### *Citation for published version (APA):*

Sloots, M., Scheppers, E. F., van de Weg, F. B., Bartels, E. A., Geertzen, J. H., Dekker, J., & Dekker, J. (2009). Higher dropout rate in non-native patients than in native patients in rehabilitation in The Netherlands. *International Journal of Rehabilitation Research*, 32(3), 232-237.  
<https://doi.org/10.1097/MRR.0b013e32832081c>

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# Higher dropout rate in non-native patients than in native patients in rehabilitation in The Netherlands

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Dropout from a rehabilitation programme often occurs in patients with chronic nonspecific low back pain of non-native origin. However, the exact dropout rate is not known. The objective of this study was to determine the difference in dropout rate between native and non-native patients with chronic nonspecific low back pain participating in a rehabilitation programme in The Netherlands. A retrospective study ( $n=529$ ) of patient files was performed in two rehabilitation centres and two rehabilitation departments of general hospitals in The Netherlands. Patient files were checked for diagnosis, status of origin, sex, age and outcome, that is, reason for finishing treatment. The difference in dropout rate between patients of Dutch and non-Dutch origin was tested by  $\chi^2$  tests and logistic regression-analysis, controlling for age, sex, type of rehabilitation institute and phase of the rehabilitation programme. Dropout occurred among one fifth (18.7%) of the total patient population. Dropout among patients of non-Dutch origin was twice as high as among native Dutch patients ( $P < 0.001$ ). In regression analyses dropout was related to status of non-Dutch origin, treatment in a rehabilitation centre and the diagnostic phase of a rehabilitation programme. In conclusion, patients of non-Dutch origin drop out considerably more frequently than native Dutch patients. Dropout is higher in the diagnostic phase than in the treatment phase and in rehabilitation centres than in hospitals. Future research should clarify the reasons for the high dropout rate in patients of non-native origin.

Zugewanderte Patienten mit chronischen unspezifischen Kreuzschmerzen scheiden oft aus Reha-Programmen aus. Die genaue Dropout-Rate ist jedoch nicht bekannt. Ziel der vorliegenden Studie war die Ermittlung der unterschiedlichen Dropout-Rate zwischen einheimischen und zugewanderten Patienten mit chronischen unspezifischen Kreuzschmerzen, die an einem Reha-Programm in den Niederlanden teilnahmen. Eine retrospektive Studie ( $n=529$ ) von Krankenakten wurde in zwei Reha-Zentren und zwei Reha-Abteilungen von allgemeinen Krankenhäusern in den Niederlanden durchgeführt. Die Krankenakten wurden auf Diagnose, Herkunft, Geschlecht, Alter und Ergebnis, d.h. den Grund für die Einstellung der Behandlung, hin überprüft. Die unterschiedliche Dropout-Rate von Patienten niederländischer und nicht-niederländischer Herkunft wurde mit  $\chi^2$  Tests und der logistischen Regressionsanalyse ermittelt, die Alter, Geschlecht, Art der

Reha-Einrichtung und Phase des Reha-Programms untersucht. Ein Fünftel (18.7%) der gesamten Patientenpopulation brach die Reha-Maßnahmen ab. Das Dropout-Risiko unter Patienten nicht-niederländischer Herkunft war zweimal so hoch wie bei einheimischen niederländischen Patienten ( $P < 0.001$ ). Bei den Regressionsanalysen wurde das Dropout-Problem mit dem Zuwanderungsstatus, der Behandlung in einem Reha-Zentrum und der diagnostischen Phase eines Reha-Programms in Verbindung gebracht. Die Studie kommt zu dem Schluss, dass Patienten nicht-niederländischer Herkunft Reha-Maßnahmen wesentlich öfter abbrechen als einheimische niederländische Patienten. Die Dropout-Rate ist in der diagnostischen Phase höher als in der Behandlungsphase und in Reha-Zentren höher als in Krankenhäusern. Künftige Forschungsprojekte sollten die Gründe für die hohe Dropout-Rate von zugewanderten Patienten klären.

El abandono del tratamiento en los programas de rehabilitación es frecuente en pacientes no nativos con dolor lumbar inespecífico. Sin embargo, se desconoce la tasa exacta de abandono del tratamiento. El objetivo de este estudio fue determinar las diferencias entre las tasas de abandono del tratamiento en pacientes nativos y en pacientes no nativos con dolor lumbar inespecífico participantes en un programa de rehabilitación en los Países Bajos. Se realizó un estudio retrospectivo ( $n=529$ ) de las historias clínicas de los pacientes en dos centros de rehabilitación y en dos departamentos de rehabilitación de hospitales generales de los Países Bajos. De las historias clínicas de los pacientes se tomó el diagnóstico, la nacionalidad, el sexo, la edad y los resultados, es decir la causa del abandono del tratamiento. Las diferencias entre las tasas de abandono del tratamiento en los pacientes de origen holandés y en los originarios de otros países se calculó utilizando las pruebas de  $\chi^2$  y análisis de regresión logística, controlados según la edad, el sexo, el tipo de centro donde se realizó la rehabilitación y la fase del programa de rehabilitación. El abandono del tratamiento se produjo en un quinto (18.7%) de la población total de pacientes. El abandono del tratamiento en los pacientes originarios de otros países fue dos veces más alto que el de los pacientes nativos holandeses ( $P < 0.001$ ). En los análisis de regresión, el abandono del tratamiento estuvo relacionado al origen (holandés o no holandés), el tratamiento en un centro de rehabilitación y la fase del programa de rehabilitación. En conclusión, los pacientes

no nativos holandeses abandonan el tratamiento con una frecuencia considerablemente mayor que los pacientes nativos holandeses. El abandono del tratamiento es más frecuente en la fase de diagnóstico que en la fase de tratamiento, y en los centros de rehabilitación en comparación con los hospitales. Las investigaciones futuras deben esclarecer las razones de las altas tasas de abandono del tratamiento en pacientes originarios de otros países.

L'abandon d'un programme de rééducation se produit souvent chez les patients d'origine étrangère au pays qui souffrent de lombalgie chronique non spécifique. Toutefois, le taux d'abandon exact n'est pas connu. Cette étude avait pour objet de déterminer la différence de taux d'abandon entre les patients originaires du pays et originaires de l'étranger qui souffrent de lombalgie chronique non spécifique et participent à un programme de rééducation aux Pays-Bas. Une étude rétrospective ( $n=529$ ) effectuée à partir des dossiers des patients a été réalisée dans deux centres de rééducation et deux services de rééducation d'hôpitaux généraux aux Pays-Bas. Les dossiers des malades ont été examinés pour relever le diagnostic, le statut d'origine, le sexe, l'âge et le résultat, c'est-à-dire, la raison pour mettre fin au traitement. La différence de taux d'abandon entre les patients d'origine hollandaise et d'origine étrangère a été testée par tests  $\chi^2$  et par analyse de régression logistique, en prenant pour paramètres de contrôle l'âge, le sexe, le type d'institut de rééducation et la phase du programme de rééducation. L'abandon du programme a été constaté chez un cinquième (18.7%) de la population totale des patients. L'abandon chez les

patients d'origine non-hollandaise était deux fois plus élevé que chez les patients néerlandais ( $P < 0.001$ ). Dans les analyses de régression, l'abandon a été lié au statut d'origine non-hollandaise, au traitement dans un centre de réadaptation et à la phase de diagnostic d'un programme de rééducation. En conclusion, les patients d'origine non-néerlandaise abandonnent les programmes beaucoup plus fréquemment que les patients hollandais. L'abandon est plus élevé dans la phase de diagnostic que dans la phase de traitement et dans les centres de rééducation que dans les hôpitaux. Les recherches futures devront clarifier les raisons du taux élevé d'abandon chez les patients d'origine non-hollandaise. *International Journal of Rehabilitation Research* 32:232–237 © 2009 Wolters Kluwer Health | Lippincott Williams & Wilkins.

*International Journal of Rehabilitation Research* 2009, 32:232–237

**Keywords:** low back pain, minority health, patient dropouts, rehabilitation

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Received 29 August 2008 Accepted 1 March 2009

## Introduction

Chronic nonspecific low back pain is a major health problem and a cause of disability, medical expenses and absenteeism (Van Tulder *et al.*, 2000b). The primary aim of rehabilitation treatment is not to cure the low back pain or any underlying disease. Rehabilitation treatment of chronic low back pain is focused on teaching patients how to influence their complaints positively and to arrive at an insight into the relationship between the complaints and the context in which they occur (Köke, 2005).

A number of patients drop out prematurely from this type of rehabilitation programme. Dropout in this study is defined as finishing of a rehabilitation programme because of nonmedical reasons. Dropout rates in rehabilitation programmes have been reported as ranging from 9 to 42% in pain rehabilitation (Peters *et al.*, 1992; Rainville *et al.*, 1993; Bendix *et al.*, 1998), 22–55% in cardiac rehabilitation (Digenio *et al.*, 1991; Worcester *et al.*, 2004; Sarrafzadegan *et al.*, 2007; Yohannes *et al.*, 2007) and 45% in osteoarthritis rehabilitation (Wilder and Barrett, 2005).

The clinical experience, in four participating institutes in this study, is that patients of non-Dutch origin drop out more often than native patients, but no exact data are known.

Most knowledge is available about dropout rates of ethnic minority patients in mental healthcare programmes. In these two studies the dropout rates have been reported as 29 and 52% in ethnic minority patients compared with 19 and 30% in native patients, respectively (Sue *et al.*, 1974; Wang, 2007). In healthcare programmes for drug addicts, the dropout rate in patients of non-Dutch origin has been reported to be 60 compared with 50% in native Dutch patients (Vrieling *et al.*, 2003).

More sick leave days (Carosella *et al.*, 1994; Lansinger *et al.*, 1994; Bendix *et al.*, 1998), higher pain severity (Barnes *et al.*, 1989; Carosella *et al.*, 1994), being less active in sports (Bendix *et al.*, 1998), a lower age (Carosella *et al.*, 1994) and the idea that exercise did not help or aggravated pain (Mailloux *et al.*, 2006) have

been identified as predictors of dropout in low back pain rehabilitation programmes. Dropout from rehabilitation treatment in non-native patients is poorly understood. At the theoretical level, Andersen's Behavioural Model of Health Services (Andersen and Newman, 1973) describes dropout at three levels: patient, provider and system level. Barriers on all three levels influence the way care is provided and used by patients involved (Scheppers *et al.*, 2006). In rehabilitation programmes, patients of non-native origin potentially experience more barriers than native patients, for example, owing to limited language proficiency, less proto-professionalism (the process whereby patients gain more information on causes and treatment of diseases and develop a view on cause and treatment of symptoms) and expectations that a rehabilitation programme is able to cure their disease (Thomas *et al.*, 1999). Although several reasons for dropout have been described, dropout among patients of non-native origin is still poorly understood.

This study aimed to determine the difference in dropout rates between native and non-native patients with chronic nonspecific low back pain participating in a rehabilitation programme in The Netherlands. This study was undertaken to check the clinical impression of a relatively high dropout rate among patients of non-Dutch origin in rehabilitation programmes. This study quantifies the magnitude of the problem of dropout among non-native patients, as an important step before seeking explanations for and solutions to this problem.

## Methods

### Design

This retrospective file study was conducted in 529 patients who received rehabilitation between 2001 and 2004 in four participating institutes: two rehabilitation centres and two rehabilitation departments of general hospitals. These four institutes were selected because they all were situated in one city or its surroundings. This offered the opportunity to compose a group of institutes that was as similar as possible regarding the composition of the patient population.

### Patients

Patients were recruited from the four participating outpatient rehabilitation departments. All patients that had been treated in the four departments for back pain complaints were checked for inclusion according to the inclusion criteria. Patient files were checked for diagnosis, status of origin, sex, age and outcome, that is, reason for finishing treatment.

The following inclusion criterion was applied: chronic low back pain that existed for longer than 12 weeks (Van Tulder *et al.*, 2000a) and had not been ascribed to a specific pathology. The low back is the body region

between the lower ribs and the lower buttock fold. The status of non-Dutch origin was defined as follows: born outside The Netherlands and at least one parent born in the same country, or born in The Netherlands and both parents born outside The Netherlands. Non-Dutch origin was coded as: Surinam or Antillean origin, Turkish origin, Moroccan origin, or other non-Dutch origins.

### Outcome

Finishing the rehabilitation programme was coded as owing to medical reasons (e.g. aims of rehabilitation accomplished), nonmedical reasons (e.g. patient withdraws from rehabilitation as his/her expectations were not met), external reasons (e.g. lack of transport possibilities) or nonapplicable (e.g. rehabilitation was not yet completed, or no reason of completion was written down). Dropout was defined as a finished rehabilitation programme because of non-medical reasons.

Dropout can occur in the diagnostic or the treatment phase. The diagnostic phase is defined as the phase in which the rehabilitation physician performed diagnostic examinations, checked the information received from the referring physician and radiographs to exclude a somatic cause of the low back pain. In the treatment phase the rehabilitation team containing physical therapists, psychologists, occupational therapists and social workers under responsibility of the rehabilitation physician treated the patient.

### Statistical analysis

The difference in dropout rate (nonmedical vs. medical and external reasons) between native Dutch patients and patients of non-Dutch origin was analysed using  $\chi^2$  tests for dichotomous variables. Logistic regression analysis was used to describe the relationship between dropout as dependant variable and status of origin, age, sex, type of institute and phase of rehabilitation as independent variables. These variables were entered into a forward stepwise logistic regression analysis. Significance was set at *P* value less than 0.05. The Statistical Package for Social Sciences (SPSS Inc., Chicago, Illinois, USA) Version 15.0 was used to perform statistical analyses.

### Ethics

The study was approved by the Medical Ethics Committee of the Slotervaart hospital, the Jan van Breemen Institute and the Boven-IJ hospital.

## Results

### Participants

Five hundred and twenty-nine patients met the inclusion criteria. Patients' characteristics are given in Table 1. The distribution between native Dutch patients and patients of non-Dutch origin was 65 versus 35%. The sample in this study contained 35% non-native patients. The

general Dutch population contains 20% non-native citizens. However, the sample in this study compares well to cities, where most non-native people live. The percentages of non-native citizens in the locations of the study varied between 25 and 49%. Patients of non-Dutch origin in this study consisted of patients of Surinam and Antillean origin (4%), Turkish origin (8%), Moroccan origin (10%) and of various non-Dutch origins (13%).

### Outcome

Table 2 describes the frequency of finishing rehabilitation treatment for four different reasons. One fifth (18.7%) of all patients dropped out. Dropout was twice as high ( $\chi^2 = 20\ 607$ , d.f. = 1,  $P < 0.001$ ) in patients of

non-Dutch origin (28.1%) as in native Dutch patients (13.7%). Dropout in patients of Turkish origin was 32% (out of 44) and 33% (out of 51) in patients of Moroccan origin. Dropout in patients of Surinam and Antillean origin was 20% (out of 20) and 24% (out of 70) in patients of other non-Dutch origins.

Dropout rates in different institutions and phases of treatment are given in Table 3. Dropout was significantly higher ( $\chi^2 = 11\ 727$ , d.f. = 1,  $P = 0.001$ ) in rehabilitation centres (21.6%) than in hospitals (9.1%). Dropout was significantly higher ( $\chi^2 = 16\ 051$ , d.f. = 1,  $P < 0.001$ ) in the diagnostic phase (26.4%) than in the treatment phase (11.7%) of the rehabilitation programme.

In rehabilitations centres the dropout in patients of non-Dutch origin was 32.2% and in hospitals 11.1%. In rehabilitation centres 48% (out of 27) patients of Turkish origin, 43% (out of 15) patients of Moroccan origin, 33% (out of 49) patients from other non-Dutch origins and 24% (out of 17) patients of Surinam or Antillean origin dropped out. The dropout rate in native Dutch patients was 16.7% (out of 40).

In hospitals, dropout in patients of Moroccan origin was 50% (out of four), Turkish origin 8% (out of 13), native Dutch patients 8% (out of 84) and in patients of other

**Table 1 Patients characteristics**

	Rehabilitation centres <i>n</i> = 408 (%)	Hospitals <i>n</i> = 121 (%)	Total group <i>n</i> = 529 (%)
Sex			
Female	230 (56.4)	74 (61.2)	304 (57.5)
Male	178 (43.6)	47 (38.8)	225 (42.5)
Age			
< 20	4 (1)	0 (0)	4 (0.8)
20–64	366 (89.7)	109 (90.1)	475 (89.8)
> 65	38 (9.3)	12 (9.9)	50 (9.4)
Origin			
Dutch	259 (63.5)	85 (70.2)	344 (65)
Non-Dutch	149 (36.5)	36 (29.8)	185 (35)

**Table 2 Reasons for finishing treatment per institution**

	Rehabilitation centres			Hospitals		
	Dutch ( <i>n</i> = 259) (%)	Non-Dutch ( <i>n</i> = 149) (%)	Total ( <i>n</i> = 408) (%)	Dutch ( <i>n</i> = 85) (%)	Non-Dutch ( <i>n</i> = 36) (%)	Total ( <i>n</i> = 121) (%)
Medical	193 (74.5)	79 (53)	272 (66.6)	75 (88.2)	30 (83.3)	105 (86.8)
Nonmedical (dropout)	40 (15.5)	48 (32.2)	88 (21.6)	7 (8.2)	4 (11.1)	11 (9.1)
External	7 (2.7)	1 (0.7)	8 (2.0)	2 (2.4)	0 (0)	2 (1.6)
Not applicable	19 (7.3)	21 (14.1)	40 (9.8)	1 (1.2)	2 (5.6)	3 (2.5)

**Table 3 Dropout rate in different institutions and phases of treatment**

	Rehabilitation centres			Hospitals		
	Dutch ( <i>n</i> = 259) (%)	Non-Dutch ( <i>n</i> = 149) (%)	Total ( <i>n</i> = 408) (%)	Dutch ( <i>n</i> = 85) (%)	Non-Dutch ( <i>n</i> = 36) (%)	Total ( <i>n</i> = 121) (%)
Diagnostic phase	32 (12.3)	39 (26.2)	71 (17.4)	2 (2.3)	2 (5.6)	4 (3.3)
Treatment phase	8 (3.1)	9 (6)	17 (4.2)	5 (5.9)	2 (5.6)	7 (5.8)
Total	40 (15.4)	48 (32.2)	88 (21.6)	7 (8.2)	4 (11.1)	11 (9.1)

**Table 4 Logistic regression analysis of dropout**

	<i>B</i>	SE	Wald	d.f.	Significance	Exp ( <i>B</i> )	95% CI for Exp ( <i>B</i> )	
							Lower	Upper
Sex	0.131	0.241	0.296	1	0.587	1.140	0.710	1.830
Age group	−0.651	0.454	2.052	1	0.152	0.522	0.214	1.271
Type of institution	−0.819	0.359	5.212	1	0.022	0.441	0.218	0.891
Status of origin	0.890	0.243	13.408	1	0.000	2.435	1.512	3.921
Phase of treatment	−0.759	0.273	7.733	1	0.005	0.468	0.274	0.799
Constant	0.523	1.245	0.176	1	0.675	1.686	—	—

CI, confidence interval.

non-Dutch origins 7% (out of 15). Among patients of Surinam or Antillean origin no dropout occurred.

### Multivariate analysis of dropout

Results of the logistic regression analysis to predict dropout are shown in Table 4. The results indicate that dropout is predicted by non-Dutch origin, treatment in a rehabilitation centre and rehabilitation in the diagnostic phase. The significant differences in dropout rates between patients of Dutch and non-Dutch origin, between rehabilitation centres and hospitals, and between the diagnostic phase and the treatment phase of the rehabilitation programme detected in the univariate analysis remained significant in the multivariate analysis. In the multivariate analysis, non-Dutch origin was the strongest predictor of dropout. To verify whether geographic region influenced the results, this variable was added in the multivariate analysis. However, geographic region was not a predictor of dropout.

### Discussion

The aim of this study was to establish the difference in dropout rate between native and non-native patients with chronic nonspecific low back pain participating in a rehabilitation programme in The Netherlands. It was found that dropout in patients of non-Dutch origin of rehabilitation programmes was twice as high as in native Dutch patients. This is a disturbing finding and a reason for concern in clinical practice. Dropout was found to be predicted by status of non-Dutch origin, treatment in a rehabilitation centre and the diagnostic phase of rehabilitation. This means that patients of non-Dutch origin in a rehabilitation centre during the diagnostic phase of treatment have the highest risk of dropping out from a rehabilitation programme. Previous studies did not include status of origin, type of rehabilitation institute and phase of the rehabilitation programme as variables of dropout in analyses. Therefore, this study is the first to investigate the relationship between these variables and dropout.

An overall dropout rate of 18.7% in this study is consistent with those of previous studies in patients with (low back) pain, which found dropout rates ranging from 10 to 42% (Peters *et al.*, 1992; Rainville *et al.*, 1993; Bendix *et al.*, 1998). The significant difference in dropout rates between native Dutch patients (13.7%) and patients of non-Dutch origin (28.1%) is consistent with a study conducted in mental healthcare. In this study the dropout rate was significantly higher in ethnic minority patients (52%) than in native patients (30%) (Sue *et al.*, 1974).

One study, conducted in patients who participated in a cardiac rehabilitation programme, identified unemployment or searching for employment as a predictor of dropout (Worcester *et al.*, 2004). As patients of non-Dutch

origin have a higher unemployment rate than native Dutch patients (Veenman and Martens, 1999), this may be an explanation of a higher dropout rate in patients of non-Dutch origin. Whether other potential barriers, for example, a limited language proficiency (Thomas *et al.*, 1999), might explain the higher dropout in patients of non-Dutch origin should be addressed in a future study.

Being enrolled in a rehabilitation programme in a rehabilitation centre was a predictor for dropout. A potential reason is that because of the diagnostic evaluation procedure at the start of the rehabilitation programme conducted by a rehabilitation physician and a psychologist, which is a standard procedure in rehabilitation centres, fewer patients stay enrolled in the rehabilitation programme. Patients enrolled in this diagnostic procedure are potentially confronted with inadequate pain coping. This, being the main factor maintaining their symptoms, could be the reason for dropout.

The diagnostic phase of the rehabilitation programme was also found to be a predictor of dropout. A potential reason is that in this phase different expectations between patients and physicians regarding the aim of the treatment are a source of tension (Thomas *et al.*, 1999; Verbeek *et al.*, 2004; Holloway *et al.*, 2007). Patients who aim for pain relief will be disappointed when it becomes apparent that the rehabilitation programme aims to teach patients to cope with their symptoms instead of aiming for pain relief.

A strength of this study is that it has been conducted at four different rehabilitation institutes. This contributed to the generalizability of the findings. A limitation is that our results of dropout in patients enrolled in low back pain rehabilitation programmes cannot be generalized to dropout of rehabilitation programmes for other conditions.

### Conclusion

Low back pain patients of non-Dutch origin dropout considerably more frequently than native Dutch patients. Dropout is higher in the diagnostic phase than in the treatment phase and in rehabilitation centres than in hospitals. Future research should clarify the reasons for the high dropout rate in patients of non-native origin.

### Acknowledgements

This study was financed by ZonMw, the Dutch organization for Health Research and Development. Grant number 14350041.

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